

**TITLE OF THE INVENTION**

DISPLAY BOX FOR CYLINDRICAL CONTAINERS WITH A PROFILED BASE

**FILED OF THE INVENTION**

The present invention relates to a display box for a substantially cylindrical container of the type having a profiled base from which at least one tooth or the like projects, the box having an appendix in which a hole is provided for the insertion of said tooth, to prevent the container rotating about its axis when housed in the display box.

**BACKGROUND OF THE INVENTION**

Cylindrical containers are known (for example for perfumes, deodorants or other valuable or high cost substances, which may or may not be under pressure within the containers and can be dispensed by manually operated pumps or valves applied to the containers and covered or protected by lids or the like which often have the same shape and transverse dimension as the containers on one end of which they are mounted), presenting writing, designs, trademarks or the like on a limited portion of their cylindrical surface.

It is known to house such containers in boxes from which that container portion carrying said trademarks, writing or the like projects and is visible.

The problem which arises is to prevent the containers from rotating about their axis after being correctly inserted into the box through an aperture or window in a front wall of the box, so that that container portion carrying the trademarks or writing is always exposed to view.

The containers cannot be fixed by glue or the like into the relative display box because glue traces (anti-aesthetic and fastidious to the touch) could remain adhering to the container surface after their removal from the display box in order to be used. All previous attempts to construct low cost boxes which allow an exactly defined lateral container portion to remain in view while being effective in preventing the containers from rotating about their

longitudinal axis (for example by the effect of shaking, or following handling, deformation or impacts which always occur during box transport and storage) after insertion in the required position in the box have not been successful. Most containers for which display boxes are used are of two types, of which one has a totally cylindrical lateral surface (including any lid) and a concave base from which a small tooth or protuberance projects, and the other has an annular collar projecting in proximity to the container lid, this collar often having only an aesthetic function, but often forming the ring which fixes a pump or a valve to the container mouth.

#### **SUMMARY OF THE INVENTION**

An object of the present invention is to provide a display box able to house and retain a container of cylindrical type with a base from which a tooth or the like projects, as stated.

Another object is to provide a display box of the stated type which is formed from a single piece of punched and crease-lined cardboard and can be assembled automatically by those machines commonly present in cardboard processing firms specialized in box production.

These and further objects are attained by a box comprising side walls, a base wall and a front wall in which a window bounded by longitudinal edges and end edges is provided through which there projects outwards a cylindrical portion of a container which is housed in the box in a seat defined by said base wall and by inner longitudinal walls of the box and extending between said base wall and the front wall in correspondence with the longitudinal edges of the window provided therein, said window having substantially the same shape and dimensions as the outer profile of the longitudinal section through the container, characterised in that from one of the end edges bounding said window there projects a discoidal appendix separated from said front wall by a folding line or the like which enables the appendix to rotate about said folding line, in the

discoidal appendix there being provided at least one hole the dimensions of which are such that a tooth or the like projecting from the container base can be inserted into each of them and retained therein, to prevent the container from rotating about its axis when housed in its seat in the display box.

Preferably, the holes provided in the discoidal appendix are elongate and are distributed radially to converge towards the central point of said folding line, the end edge of said window from which said discoidal appendix extends being shaped substantially complementary to the shape of the base of the container which the box is intended to house.

The invention also relates to the punched and crease-lined cardboard sheet used to form the box.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

The structure and the characteristics of the display box according to the invention will be more apparent from the ensuing description of a preferred embodiment thereof given by way of non-limiting example with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a flat punched and crease-lined cardboard sheet showing that surface thereof which is to remain in the inside of the box;

Figures from 2 to 5 show the same cardboard sheet in its various successive stages of folding and gluing by the cardboard processing firm which produces the box;

Figure 6 is a perspective view on an enlarged scale of a box housing a container the profile of which is shown (for clarity of the drawing) by dashed lines; and

Figure 7 is a partial perspective view on an enlarged scale of one end of the box already prepared and shaped, as it appears before a container is inserted therein.

#### **DETAILED DESCRIPTION OF THE INVENTION**

Reference will firstly be made to Figure 1 representing a plan view, showing that side which remains inside the box formed therefrom, of a piece of punched and crease-lined

cardboard comprising a plurality of parallel folding or creasing lines 1-9 defining two side walls 10, 11, a base wall 12, a front wall 13 and two inner longitudinal walls 14, 15 separated by an intermediate wall 16, on the left (with respect to Figure 1) of the wall 15 there extending two narrow longitudinal walls 17 and 18 respectively.

In that cardboard sheet portion comprising the walls 14 and 16 a rectangular hole 21 is lowerly provided to define lowerly (with respect to the drawing) a narrow strip of cardboard separated into two parts 22, 23 by a short folding line 24 (which is not aligned with the creasing line 4), whereas a short creasing line 25 separates the part 23 from the intermediate wall 16; in the upper wall of the same cardboard sheet portion 14, 16 there is provided a profiled hole 26 which upperly (with respect to the drawing) defines a thin cardboard strip presenting two creasing lines 27, 28.

Finally it can be seen that flaps 29, 30, intended for example to act as lids for closing the ends of the completed box, project from the base wall 12; and that in the front wall 13 there is provided a large elongate hole 31 the shape and width of which are substantially equal to those of the front profile of the container (including its lid) which is to be housed and displayed in the box. It can be seen that that end edge 32 bounding the upwardly facing end of the hole 31 is shaped substantially complementary to the shape or profile of the base of said container, which is assumed to be concave.

From this end edge 32 of the hole 31 there projects a discoidal appendix 19 which is separated from said edge by a facilitated folding line 20 (formed for example by small cuts or knurling) about which the discoidal appendix can easily rotate in order to be turned into the inside of the already finished and shaped box. From the drawings it can also be seen that in the discoidal appendix 19 there are provided a plurality of radially distributed small elongate holes 60, the profile and dimensions of which are such that

a tooth or the like, projecting from the base of the container which the box is intended to house, can be inserted into and retained in each of them (just one of said holes 60 could also be provided).

It will now be assumed that the cardboard sheet of Figure 1 is to be used to form the required display box.

A strip of glue 16A (shown dotted in Figure 1) is firstly applied to the wall 16, then the cardboard sheet is folded back on itself clockwise about the creasing line 6, as shown in Figure 2; then while holding the walls 14 and 16 adhering to and resting on the underlying walls 10 and 12, the cardboard sheet is folded anticlockwise about the creasing line 3 (Figure 3) to superpose the walls 15, 17, 18 on the walls 14 and 16. Then by rotating clockwise about the creasing line 2, the walls 17 and 18 are turned over onto the wall 15 (Figure 4) and two strips of glue (represented by the longitudinally distributed dots) 40, 41 are spread onto the cardboard sheet, between the creasing lines 5, 6 and 1, 2 respectively.

At this point the cardboard sheet is again turned over anticlockwise about the creasing line 8 (Figure 5) to superpose the wall 11 on the wall 18 and press the front wall 13 onto the two strips of glue 40, 41 to securely fix the wall 13 both to the wall 17 and to the wall longitudinally bound by the creasing lines 5 and 6: the preparation of the box (which lies flat and pressed on itself) by the firm which has produced it is hence terminated. Packs of flattened boxes obtained in this manner are used directly by those firms which give them the final shape required to receive and retain the containers 50, the profile of which is shown by dashed lines (for drawing clarity) in Figure 6.

The firm which uses the boxes makes them assume (very easily and quickly, using automatic machines of known type) the parallelepiped form shown in Figures 6 and 7 by simply pressing the creasing lines 6 and 8 one towards the other. At this point the user firm automatically inserts (as is

currently done) a container 50 through the elongate hole 31 provided in the front wall 13 of the box, positioning the container in contact with the wall 16 and between the two internal longitudinal walls 14, 15 which have a length less than the diameter of the container, a portion of whose cylindrical surface (precisely that portion carrying trademarks or writing which is to remain permanently visible from the outside of the box through the hole 31) projects from the outer surface of the front wall 13 of the display box.

As soon as the box has been shaped and before the cylindrical container 50 is inserted into it, the discoidal appendix 19 is coplanar with the surface of the front wall 13 from which it projects (as shown in Figure 7, which shows only that end portion of the box at which the container base is to be positioned and which, as already stated, is of concave shape and presents at least one projecting tooth, usually of elongate shape and radial arrangement, as is each of the elongate holes 60).

As soon as the container 50 has been inserted into the box through the hole 31 provided in the front wall 13 of the box, the bottom end of the container interferes with the discoidal appendix 19, causing it to turn over (about the folding line 20) into the box (Figure 6). As the end edge 32 of the hole 31 is shaped substantially complementary to the profile of the container base, the discoidal appendix becomes positioned adhering to the container base; the tooth which is assumed to project from the container base penetrates automatically (or after the container has undergone a very small rotation about its axis) into one of the holes 60 of the discoidal appendix, hence preventing any free rotation of the container about its axis after the container has been inserted into the box.

In this manner the trademarks, writing and the like present on that cylindrical surface portion of the container which have been positioned to be visible through the hole 31 in the front wall 13 remain permanently facing the hole 31.